Cornerstone Solar

Visual Technical Memorandum

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Jefferson Township, Washington County, Pennsylvania

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1.0 Introduction

1.1 Project Description

Cornerstone Solar, LLC (Applicant) proposes to develop the Cornerstone Solar (Project), an approximately 200-megawatt (MW) alternating current (AC) solar energy facility on approximately 730 acres in Jefferson Township, Washington County, Pennsylvania. The site is located approximately 25 miles southwest of Pittsburgh, with center coordinates at 40.315731 degrees North, 80.509238 degrees West. The Project area extends to the Pennsylvania and West Virginia state line on its western boundary and is bisected by Bethel Ridge Road and Miller Road. The project is proposed within the Solar Energy Facility Overlay District primarily across existing reclaimed mine land and existing open agricultural fields.

The Project will consist of the installation of photovoltaic solar modules along with associated electrical infrastructure, access roads, fencing, and operations facilities designed for utility-scale renewable power generation. The solar modules will be the SIL-580 model manufactured by Silfab Solar, each measuring 7.5 feet (89.7 inches) wide, 3.7 feet (44.6 inches) high, and 0.1 feet (1.4 inches) thick. Additional components of the Project will include a network of 20-foot-wide gravel access roads and electrical transmission lines, 48 inverters, and a substation.

The overhead 34.5 kV collector line is approximately 6,494.5 feet, designed as a three-phase monopole configuration

1.2 Purpose and Intent

The purpose of the Visual Technical Memorandum is to evaluate any potential visual changes associated with a proposed action in relationship to the existing landscape. Further, the visual investigation of the proposed Project utilizes current industry standards through prevalent practice standards, framework, and guidelines made publicly available by several federal agencies (i.e., the United States (U.S.) National Park Service, the U.S. Department of Agriculture – U.S. Forest Service, the U.S. Army Core of Engineers, and the U.S. Bureau of Land Management). To conduct the visual analyses, a two-mile Visual Study Area (VSA) was established according to the Project's scale, magnitude, and breadth, in comparison to the existing viewing environment. For permitting purposes, visual analysis was confined to only the portion of Jefferson Township that intersects the two-mile VSA. The content of the memorandum prepared herein offers the following visual topics of discussion:

- The character and quality of the existing landscape in the VSA.
- Employment of landscape similarity zones.
- The nature and degree of visual change from important and representative locations, also known as Key Observation Points (KOP).

- High-level identification of visual resources.
- A summary of results for the respective visual investigations.

2.0 Quality of Existing Landscape

2.1 Community/Residential

The VSA for the Project is located near several local communities such as Eldersville, Jefferson, and Penowa, with the communities of Penowa and Jefferson being the closest populated areas to the Project. The remaining community of Eldersville is located on the outer extents of the VSA to the northeast, or the furthest distance to the Project within the study area (approximately 2-miles from the Project).

To convey information pertaining to population densities in the VSA, population data derived from the U.S. Census Bureau (2020 Decennial Census) is provided below in Table 1, Population of Communities within the VSA. This population data does not account for interstate travelers nor national travelers that may visit the region or travel through to reach other destinations. As shown in Table 1, the Community of Eldersville contains the largest population in the VSA (243). The Project is proposed within Jefferson Township, which has a population estimate of 812 in the VSA.

Table 1. Population of Communities within the VSA

Community	Population[1] (2020 Census Estimates)
Eldersville	243
Jefferson	155
Penowa	78
Rural Residential	336
Total Population in VSA[2]	**812**

[1]Population estimates account for the entire community located in and beyond the VSA extents. Census Blocks are used to aggregate populations and typically overlap with other jurisdictions, therefore the estimates shown in Table 1 may overestimate current populations.

[2] Total population in VSA encompasses developed communities and rural areas within the VSA, as well as areas (census blocks) that also intersect and extend beyond the VSA. Therefore, the estimates for the "total population in the VSA" may overestimate current populations.

Communities within the VSA are outlined within Table 1 and include unincorporated places recognized as Minor Civil Divisions (MCD) and/or hamlets, as defined by the Census Bureau. MCDs and hamlets are traditionally smaller communities that fall under governance of Townships and/or Counties.

2.2 Physiography

The examination of physiography is important for identifying existing topographic conditions that may influence potential visibility of a proposed action. In general, landforms with elevated topography may offer viewing positions within a landscape, thereby increasing the chance to view distant landscape features or elements, depending on the availability of open space, or absence of visual obstructions (e.g., vegetation, buildings, topography). The physiography was investigated within the VSA, and it was determined that the Project is within the Appalachian Plateaus physiographic province ("Physiographic Provinces of Pennsylvania", Commonwealth of Pennsylvania, Department of Conservation and Natural Resources, Bureau of Geological Survey, Fourth Edition, 2000). Within this physiographic region, the Waynesburg Hills physiographic section constitutes the topography in and around the VSA. The Waynesburg Hills section is described as very hilly with narrow hilltops and steep-sloped, narrow valleys. Terrain within this physiograph section includes moderate relief with elevations within the VSA ranging from 799 feet Above Mean Sea Level (AMSL) at the community of Penowa to 1,340 feet AMSL at the community of Eldersville. In the VSA, elevations of the Project Site range from 1,051 to 1,229 feet AMSL feet.

2.3 Travel Corridors

Travel corridors furnish the public with access to other places and locations within the local, or regional landscape. In the visual environment, public travel around the VSA increases the potential for an elevated number of viewers to view the larger landscape. In the VSA, prominently traveled roadways are identified using Pennsylvania's Department of Transportation (DOT) Average Annualized Daily Traffic (AADT) counts. These roads are listed as Eldersville Road (1,445 AADT), Cross Creek Road (982 AADT), and Cedar Grove Road (AADT 914). Many local roads and routes are available in the VSA but generally accommodate a smaller number of travelers (viewers) with access to residential dwellings, while also connecting and filtering traffic to highways that support more expedited means of travel. Local roads identified adjacent to the Project are State Line Road (AADT 57), Kidds Mill Road, Scott Hollow Road (AADT 57), Bethel Ridge Road (AADT 75), McCready Road, and Miller Road.

2.4 Land Use Patterns

Identifying land use patterns within the existing landscape provides framework for examining what part of the landscape may or may not be affected by a proposed action. The categorization of land use also provides additional information for evaluating the existing quality of the landscape. To determine land-use within the VSA, the U.S. Geological Survey (USGS) National Land Cover Database (NLCD) was consulted. As a result, five general land cover types were categorized in the VSA and are identified as agricultural, forested, developed, open, and water. Each cover type contains a discrete viewing environment that can encourage or discourage general landscape observations. For example, high intensity-developed lands with buildings may confine or obstruct a view, whereas places comprised of open landscape, such as open green spaces, may provide

farther viewing opportunities of the environment. The photo-simulations of Figure 2 illustrate photographs from within the VSA and visually convey different land uses of the existing landscape.

These land-use classifications are further listed and described below.

2.4.1 Agricultural

The agricultural land-use can be described as predominantly open land used solely for the purposes of cultivation and/or livestock, it may also contain pasture or be left fallow. This land area generally comprises undulating terrain characterized as rolling fields and is predominantly located in the northern section of the VSA. Distant views of the environment may be available at the crest of hills, however, in some instances, views may be precluded by bordering forests that abut the fields. The number of viewing public (primarily local residents), as well as the frequency and duration of viewers in a rural agricultural setting is expected to be low. Typically, sparsely located farmsteads and single residential dwellings intermittently dot this open landscape. Minor forms of vegetation or tree hedgerows are often seen separating quadrangular shaped agricultural lands into mosaic-like patterns.

2.4.2 Forested

In the VSA, forested land areas comprise mature deciduous and coniferous species, as well as mixed tree groups. Forested areas can encompass large swaths of land or be an isolated grouping of trees. Typically, forested lands are owned by private entities, or they may be protected and stewarded by a government agency. Those forested lands owned by public entities or organizations tend to offer the public recreational activities such as nature viewing or hiking. The type of viewing opportunities within this land are typically confined to the forest itself, but there may be outward facing views on the forests' exterior. This land-use is generally dispersed throughout limited areas and is notably concentrated within the southern section of the VSA.

2.4.3 Developed

This zone includes development within communities, rural-residential dwellings, and farmsteads. In rural settings, dwellings are characterized by a mix of single-family residences and farmsteads intermittently spaced along the vicinity of roads. In more developed communities, the concentrated placement of buildings and dwellings typically have the propensity to confine the public's view to foreground elements due to tightly spaced development, such as commercial buildings, residential dwellings, or street trees that may impede distant views. Rural-residential dwellings within the vicinity of the Project may experience visual change if visually obstructive topography or dense vegetation is not available. Section 2.1 Community/Residential discusses principal development areas within the VSA.

2.4.4 Open

The open land-use provides the capability to view farther distances with minor visual precluding features such as land with short scrub-shrub vegetation, cemeteries, paved lots, parks with green space, small emergent wetlands, and lands occupied by large swaths of manicured grass. This zone may contain minor development or isolated stands of vegetation. This land-use type is not as prevalent as other land-uses and is often located near developed areas.

2.4.5 Water

This land-use is characterized by the presence of meandering creeks in lowland terrain. In general, creeks within the VSA are lined with riparian buffers that typically impede views to the creek itself. In the VSA, several creeks have been listed as Cross Creek, Harmon Creek, and Scott Run (creek). These creeks are commonly dispersed within the VSA. Smaller residential ponds are also normally located throughout the VSA.

2.5 Visual Resources

Visual resources are defined as places that offer the public scenic, recreational, cultural, and/or historic experiences. Visual resources are bound to legislation or may be designated by a government agency or entity based on documented recreational, scenic/aesthetic, cultural or historic value. Other times, visual resources may be officially recognized through local planning documents and/or legislation. Places of only private concern are not a focus as not all members of the public have direct access to these places. Therefore, a residential property or dwelling should not be confused with the definition of a visual resource.

A high-level investigation of visual resources in the VSA was completed using digital information sources from state online websites and the Washington County Comprehensive Plan. The resources identified within the VSA are presented as follows.

- Meadowcroft Rockshelter and Historic Village (National Historic Landmark);
- State Game Lands 303; Pine Bank Covered Bridge;
- The Panhandle Greenway Trail;
- Cross Creek Water Corridor.

The above resources are discussed and evaluated in Section 4.2 under Visual Resources: Summary of Results.

3.0 Visual Analysis Methodology

3.1 Viewshed Methodology

A viewshed analysis was performed within the VSA to assist in the evaluation of potential visual impacts of the Project against the existing landscape. A viewshed analysis is an analytical tool used for forecasting visibility over a regional area. The final resulting output identifies geographic areas from which viewers may discern visual change associated with the Project, against the current landscape. To view the Project viewshed map, please see Figure 1 of Attachment 4.1.

To develop the visibility analysis, TRC leveraged ESRI Spatial and 3D Analyst GIS tools with Light Detection and Ranging (LiDAR) point cloud (LPC) data from the 2019-2020 USGS Western Pennsylvania and 2018-2020 FEMA South Central West Virginia LiDAR datasets. This data was obtained from the NOAA: Data Access Viewer and USGS National Map download sites.

LiDAR data is the best available elevation data as it includes high resolution accurate ground elevations in addition to building heights and individual tree heights that offer realistic physical visual impediments as they occur in the landscape. The model was further developed by establishing an observer height of 5.5 feet and the assumption that the Project would not be visible to a viewer who is standing amongst trees in a forested area. In this manner, predicted visibility was then computed within the VSA to represent a realistic and representative condition of the viewing environment. To view the discussion of the viewshed analysis results, please refer to Section 4.1.

3.1.1 Assumptions and Limitations of the Viewshed Model

The viewshed analysis identifies cells (image pixels) that contain elevation information and computes the differences along the terrain surface between an observer in the landscape and a target (e.g., building). This analysis assumes the viewer contains perfect observable conditions. Therefore, certain factors in the interpretation of results need to be considered:

1. The model assumes the observer will have perfect vision at all distances. Therefore, a certain amount of reasonable interpretation must be considered because of the limitations of human vision at greater distances or those atmospheric/meteorological conditions that may cause imperfect vision, such as haze or inclement weather. Additionally, at greater viewing distances, an object is naturally smaller and shows much less detail and will inherently have less visual impact. These aspects cannot be conveyed with this analysis.

2. If an area shows visibility, it does not mean the entirety of the Project will be visible from that area. The viewshed analysis depicts areas of visibility over a regional area. It does not inform whether a fraction, portion, of entire component is visible, but rather determines if the component is visible or not. Additionally, if visibility is occurring in an area, it may

only be a result of glimpsing a portion of the Project over undulating treetops, between gaps of trees, or visibility of the tops of components and not a full view.

3. The model was developed with the assumption that a viewer would not see the Project if standing among trees in forested areas as it is assumed the tree canopy would preclude outward-looking views.

3.2 Photo-simulation Methodology

3.2.1 Site Photography

Two site visits were conducted in March and June 2025 for the acquisition of photographs for purposes of documenting the quality of the existing environment and developing photo-simulations at important locations, or Key Observation Points (KOP). Photographs were obtained from representative KOP locations during leaf-on and leaf-off seasons to demonstrate a transparent (leaf-off) and opaque (leaf-on) environmental condition. The photographed KOP locations were also strategically obtained to provide the most unobstructed view to the Project in conjunction with discreet viewing distances, compass directions, communities, and if applicable, visual resources.

Photographs were captured with a Nikon D750 camera equipped with a fixed 50-millimeter lens. Fifty-millimeter lens settings are used as it most closely resembles human vision. Coordinates of the locations photographed were recorded with a Global Positioning System (GPS) unit and were geographically integrated into a 3D model for developing photo-simulations (see description of methodology in Section 3.2.2 below).

3.2.2 Production of Photo-simulations

Photo-simulations were developed using Autodesk 3ds Max visualization software to correctly dimension the Project 3D model into a select KOP location's photograph (see Figure 2 to view the Project photo-simulations). To build the Project, engineering specifications, drawings, and plans of the Project were obtained from the Project Design Engineers to facilitate the preparation of a representative 3D model of the Project. Publicly available LiDAR elevation data was used to place the proposed solar arrays on the surface of the earth. Proposed grading elevations were then incorporated and treated within the 3D model. Using the engineering site plan and LiDAR terrain surface data in GIS, the geographic coordinate of each proposed solar array was obtained and imported with the terrain surface within the Autodesk 3DS MAX visualization software. Each proposed structure was physically constructed according to the proposed specifications, heights, and configurations. The simulation model was further developed to position the viewer at a selected vantage point. For example, at any given KOP vantage point, the visualization software can provide and adjust the camera view to match the actual photograph. From the field photography effort, the documented camera coordinate (x, y, z) positions were entered into the

model along with other pertinent camera information. The model was further refined to precisely match the existing photograph by referencing LiDAR point cloud data against the existing landscape features identified within the photograph. Subsequently, final computer-generated images of the Project were precisely superimposed over the existing photograph then existing vegetation and debris were removed in post-compositing professional software according to the demolition plan.

Autodesk 3DS MAX can also depict physically accurate shadows and highlights on the model (Preetham et al. 1999). As such, during the field visits, each photograph recorded information such as geographic position, time, and date. This data typically exists as electronic information embedded in the respective digital photograph files. Subsequently, this information can be used to calculate the sun angle within the simulation software to represent accurate lighting conditions for the precise time of day and year that the photograph was captured.

4.0 Visual Assessment Results

4.1 Viewshed Analysis: Summary of Results

Communities:

The results of the Project viewshed analysis were tabulated by community and "rural residential areas" within the VSA. As shown in Table 2 below, the proposed Project constitutes 13.57% of predicted visibility within Jefferson Township, contrariwise, this interprets as 86.43% of the VSA will not discern the Project. The largest occurrence of Project visibility is found within the rural residential areas and agricultural fields in Jefferson Township (8.58%), followed by the communities of Jefferson (3.21%), Eldersville (1.64%), and negligible amounts of visibility in Penowa. The 13.57% net increase in visibility is generally concentrated to locations in the immediate vicinity of the Project Site, which include McCready Road and Miller Road, and private agricultural fields and/or pasture, among others. Overall, the Project's visibility threshold (13.57%) is low given that the study is focusing on one portion of Jefferson Township within the VSA.

Table 2. Viewshed Results of Project within VSA

Community	Acres of Land within VSA[2]	Acres with Predicted Visibility within VSA[1]	Percent of Predicted Visibility within VSA[1]
Eldersville	1,821.46	164.07	1.64%*
Jefferson	1,411.65	321.34	3.21%*
Penowa	718.25	13.08	0.13%*
Rural Residential/Open Field Areas	6,046.33	858.30*	8.58%*

Community	Acres of Land within VSA[2]	Acres with Predicted Visibility within VSA[1]	Percent of Predicted Visibility within VSA[1]
Total	**9,997.69**	**1,462.69**	**13.57%***

[1]Potential visibility is obtained from the viewshed analysis using topography, trees, and buildings only. Potential visibility may also be ascertained through the developed simulations, or by methods of onsite field verification.
[2]Census Blocks are used to estimate an entire community's boundary in and beyond the VSA extents. Census Blocks are used to aggregate populations and typically overlap with other jurisdictions, therefore the acres of land estimates shown in Table 2 may overestimate community boundaries.
**Numbers have been rounded and reflect a value greater than zero.*

Travel Corridors:

Travel corridors were identified using Pennsylvania's DOT AADT counts. According to the Figure 1 viewshed map, Eldersville Road (1,445 AADT) may contain a small section of solar array visibility (roughly 0.26 miles) near the community of Eldersville. Cross Creek Road (982 AADT) and Cedar Grove Road (AADT 914) were not predicted to view the Project solar arrays. Local roads such as State Line Road (AADT 57), Scott Hollow Road (AADT 57), Bethel Ridge Road (AADT 75), McCready Road, and Miller Road were predicted to have solar array visibility from very limited sections of the road where there is elevated topography and open agricultural fields. However, a vast portion of these local roads contain concentrated intervals of heavily forested woodland and hedgerows that border the Project and render obstructions from many fronts within the public right-of-way. The local road with the most anticipated solar array visibility is McCready Road, which travels within the Project site and is comprised of gravel and dirt. According to AADT of sample local roads mentioned above, the number of residential viewers traveling on McCready Road would be very low.

Land Use Patterns:

Land-use patterns were identified in the VSA using publicly available NLCD data (see Section 2.4). As a result, five general land cover types were categorized and assigned within the VSA and are classed as agricultural, forested, developed, open, and water. According to the solar array viewshed analysis of Figure 1, agricultural land-uses contain the largest amount of predicted visibility of the solar arrays. This data suggests that very few viewers within some agricultural fields may discern a portion of the Project. The second most land cover type with predicted solar array visibility is forested land areas, which the character of visibility is limited to the periphery of the forest itself. This is followed by developed, open, and water land-uses where significantly less solar array visibility is anticipated.

4.2 Visual Resources: Summary of Results

As mentioned above, visual and historic resources were identified within the VSA and are presented in Section 2.5 and are reiterated below. The viewshed results of the Project were used to determine and dictate whether predicted visibility occurs at a given resource location. Figure 1

of Attachment 4.1 provides the results of the viewshed analysis in conjunction with the visual resources identified within the VSA. In total, four visual and historic resources were identified within the VSA, however, only one received predicted visibility of the Project. No historic resources within the VSA received predicted visibility of the Project. The following visual and historic resources are not predicted to discern the Project.

- Meadowcroft Rockshelter and Historic Village (National Historic Landmark);
- Pine Bank Covered Bridge;
- Cross Creek Water Corridor.

The remaining resource entitled, "State Game Lands 303" received a negligible amount of predicted Project visibility and is further discussed below in more detail.

State Game Lands 303; Jefferson Township
State Game Lands (SGL) 303 is located in the southern part of the VSA, east of Jefferson and Penowa. The northwest boundary of the State Game Lands is within a few hundred feet of one of the southern arrays. This SGL consists of forested, open fields, and is adjacent to reclaimed strip mine areas. Even though the State Game Lands are in close proximity to one of the solar arrays, they would only receive roughly 0.28 acre of predicted Project visibility over the SGL's full 222 acres. This visibility is isolated along the boundary closest to the solar array. Due to the limited extent and location of views of the Project, it is reasonable to conclude that the Project would do little to diminish the enjoyment of these State Game Lands.

4.3 Photo-simulations: Summary of Results

The following paragraphs describe the result of each photo-simulation, including the discussion associated with potential changes to the character of the existing view, the identification of discernible Project components, the categorization of viewer types, and the frequency of use. Eight KOP locations were selected for preparation of photo-simulations based upon several factors, such as presence of predicted visibility, distance to Project, compass direction, clarity of view, frequency of view, viewer types, and as applicable, sensitive locations. Figure 2 of Attachment 4.1 presents the completed simulations under existing and proposed conditions from a representative KOP.

To convey a transparent and conservative condition of the viewing environment, simulations were prepared both under a photographed, leaf-off and leaf-on condition. This is because leaf-off conditions do not leverage the visual screening effect of foliage obstructions and provide a most-visible condition that will occur during the dormant seasons. It is reasonable to state that, typically, less viewers will be spending significant time outdoors during leaf-off conditions during the winter season. Conversely, leaf-on conditions provide an abundance of visual screening (tree foliage) when most members of the public are expected to be actively viewing the landscape. Therefore,

when reviewing the photo-simulations, it is important to recognize that foliage will propagate within the leafless trees during warmer seasons and accommodate a reduction in Project visibility.

Further, a Landscape Plan has been developed for the Project to soften and moderate views from public roads and adjacent lands to a reasonable extent practicable. Installing landscaping is the most effective screening measure for solar development for areas that do not already contain existing obstructions such as topography, tree hedgerows and forest, and structures. Consequentially, the photo-simulations of the Project illustrate proposed landscaping at 5-years after construction. This manner, suitable time is supplied for the plantings to mature and obtain a larger height and breadth.

The developed photo-simulations are described below within context to the existing viewing environment. The first paragraph for each KOP discussion provides a contextual summary of the photographed location and sets the premise for the existing condition and photo-simulation descriptions that follow.

KOP 1 Alt – Endersville Road, Located Northeast of the Project, Near Community of Eldersville (Distance to Project: 1.69 Miles)

KOP 1 Alt is representative of a 1.69-mile view to the Project from an opening in a tree hedgerow along Endersville Road. A short span of the road (0.21-mile) received predicted visibility of the northern Project arrays, however, no residential dwellings received visibility due to a tree hedgerow running parallel to the road. From this vantage point, local residents and commuters passing through this part of Endersville Road may briefly experience this perspective of the Project, depending on if viewers orient themselves towards the Project to the southwest.

As depicted in the KOP 1 Alt of the existing condition photograph, the view shows a rural roadside with a metal guardrail running parallel to a paved road. Beyond the guardrail, there's an open grassy field dotted with small, leafless trees. In the background, a hill rises, mostly covered with a bare forest. Overall, the character of the landscape from this perspective is rural-agricultural with small impressions of development in the background consisting of a few buildings and a single distant lattice transmission structure.

The proposed (leaf-off) view of KOP 1 Alt from Endersville Road shows solar arrays partially visible in the far midground, softened by existing vegetation. The visual change of the Project is minimal due to the distance and low contrast from the surrounding forest hues. Residents traveling on Endersville Road may only notice a dark mass in the distance for a brief period, while those living nearby may see it for longer but are unlikely to be significantly affected due to its small scale and low visual contrast. The rural agricultural and forest landscape remains the dominant feature despite the Project’s presence.

In the leaf-on photo-simulation of KOP 1 Alt, the Project's appearance remains consistent with the leaf-off view, except for the addition of more overhead power lines in the upper-right. The contrast slightly decreases due to the dark hue of the solar panels against the distant shadowing and the increase in vegetative cover. Overall, the visual effect remains subdued and blends with the surrounding landscape.

KOP 2 – State Line Road, Located East of the Project (Distance to Project: 0.25 Miles)

KOP 2 is representative of a midground view of the Project from State Line Road. This vantage point was documented from a limited section of the road that is anticipated to view the Project. An abandoned residential dwelling, positioned approximately 40 feet behind the photograph's direction of view, also received predicted Project visibility. Therefore, KOP 2 demonstrates potential visibility of the solar arrays that may be seen briefly and intermittently by residential and/or commuter travelers.

The existing condition view depicts a steep sloping, foreground field bordered by woodland. A single residential dwelling at the hilltop within the middle ground is seen above the foreground tree canopy. The background consists of a partial view over the foreground tree canopy to a distant hill that appears to be mostly forested. Overall, the character of the view is identified as rural-residential and forested.

In the proposed (leaf-off) view of KOP 2, solar arrays at the center of the photograph are partially visible in the midground but are softened by existing deciduous trees in the foreground. While the visual change remains low in that area, the visual change to the right of the view is slightly increased due to the lower foreground vegetation and increased elevation of the distant ridge. The clearing along the ridge allows for more contrast from the dark hues against a light blue sky. Residents traveling on State Line Road will have a fleeting view of the Project; however, nearby residents may notice the Project for longer periods. The rural agricultural and forested landscape remain the dominant features.

In the leaf-on photo-simulation of KOP 2, the Project's visibility is mitigated by the increased foliage of the foreground vegetation, with only a minimal portion visible through the gaps of the trees. According to the viewshed analysis (see Figure 1), the residence to the left of the view isn't predicted to have visibility of the Project due to the lower elevation, compared to that of the roadway, and existing forested areas between the residence and the Project.

KOP 2 Alt – State Line Road, Located East of the Project (Distance to Project: 0.32 Miles)

KOP 2 Alt is representative of a midground view of the Project from State Line Road. This vantage point was documented from another limited section of the road that is anticipated to view the Project. No residential dwellings are located within the 420-foot stretch of State Line Road that KOP 2 Alt represents. Therefore, KOP 2 Alt demonstrates potential visibility of solar arrays that

may be seen briefly by residential and/or commuter travelers when facing east or west, depending on the direction of travel.

The existing condition view illustrates a sloping landscape divided into two distinct sections. On the left, there's a grassy field with light green hues, and on the right-side the fields that abut a forested area comprised of deciduous trees. The trees stand densely packed, their bare branches creating intricate patterns against the lighter undergrowth. In the distance, some structures are partially distinguishable. In the background the apex of a wooded hill bisects two transmission structures against the overcast sky. Overall, the landscape patterns from this perspective are considered to be a mix of rural-agricultural and forested lands.

In the proposed (leaf-off) view of KOP 2 Alt, solar arrays are visible in the midground along the hillside. Even though the outer edges of the arrays are softened by surrounding trees bordering the Project, the vantage point from the elevated roadway, along with the lower topography of the landscape between the road and the Project, lends to some visual change. The visual change is low to moderate, as most of the arrays blend with the dark hues of the background forest; however, due to clearing along the ridge, a portion of the arrays break above the horizon, increasing the contrast between the dark hues of the arrays and the lighter sky. For residents traveling on State Line Road, they will have fleeting views of the Project. Nearby residents at higher elevations along State Line Road may notice the Project for longer periods, but those at lower elevations are predicted to have minor to no visibility of the Project. According to the viewshed analysis (see Figure 1), the residence to the left and right (out of frame) of the view are in closer proximity to the Project but are not predicted to have visibility due to the lower elevation and mitigation from the surrounding forest. The rural agricultural and forested landscape remain the dominant features in the view.

In the leaf-on photo-simulation of KOP 2 Alt, the Project's appearance has slightly increased visual change due to the contrast of the dark blue arrays against the green vegetation. Yet, with the increased foliage of the surrounding forest, there is a slight reduction in visible extent of the Project. Overall, the visual change to the surrounding landscape remains low to moderate. As mentioned above, residents at lower elevations, compared to that of the roadway, are predicted to have little to no visibility of the Project.

KOP 3 – State Line Road, Located East of the Project (Distance to Project: 0.37 Miles)

KOP 3 conveys another discrete area of State Line Road that received predicted visibility of the Project. This area comprises an approximate 92-foot span of the road where potential midground views of the southern solar array may be discerned. KOP 3 is in vicinity to a few residential dwellings and is representative of static views that a few residents may experience, as well as residential and commuter traffic that will have the potential to glance at the Project when passing by.

In the foreground of the existing photograph, a grassy field is enclosed by a fence with wooden posts and horizontal wires. Midway into the scene, the field recedes into a lowland area by the bottom of a forested hill. A residential house with clay colored siding is found nestled at the base of the wooded hill. In the background, gently undulating forested hills and a tan field are seen just above the midground tree canopy. The character of the view from this photographed location is predominantly rural-agricultural.

In the proposed (leaf-off) view of KOP 3, solar arrays are visible in the midground but are softened by existing vegetation bordering the Project. Similar to the viewpoint above, which was taken just to the north, along State Line Road, the visual change is muted to the left and center of the view as the Project blends with the dark hues of the surrounding forest; however, the arrays to the right have more of a contrast due to the increased open extent of the slope from clearing. Local residents travelling along State Line Road will have transient views of the Project. Nearby residents may notice the Project for longer periods but residences at lower elevations are not predicted to have views of the Project. For example, the resident to the right of the view is roughly 80 feet lower than the vantage point along the roadway and is not predicted to have visibility according to the viewshed analysis in Figure 1. Likewise, the viewshed analysis shows that the residence behind the viewpoint, which is roughly 20 feet higher, will not have visibility due to screening from the existing trees along the road. The rural agricultural and forested landscape remain the dominant features with a minor suggestion of development from two transmission towers in the background.

In the leaf-on photo-simulation of KOP 3, the Project's visibility is reduced due to screening from the increased canopy of the existing vegetation. While the contrast slightly increases with the blue hue of the solar panels against the green field and forest, the overall visual effect remains consistent.

KOP 4 – Bethel Ridge Road, Located East of the Project (Distance to Project: 1.3 Miles)

KOP 4 represents a view west-southwest to the Project from Bethel Ridge Road where a 0.16-mile stretch of Project visibility was predicted. KOP 4 is representative of viewer types comprising local residents and commuters quickly passing by.

The exiting condition photograph illustrates an elevated view from Bethel Ridge Road. The foreground consists of grass that quickly exits into gently undulating terrain comprised of a mosaic of forested and open fields within the midground of the view. A single residential dwelling is discerned on side of a hill on the right side of the photo. The background is described as gently rolling hills as noted by the blue hues of the hills and woodland. Minor impressions of development are partially distinguished in the distant background as a few transmission structures, an exhaust stack, and a slight impression of residential development scattered atop a hill.

In the proposed condition view of KOP 4, the Project is virtually unnoticeable. Upon magnification, subtle dark shadows representing solar arrays can be seen in the background among forested trees. Due to the substantial distance of the Project from the viewer, it is unlikely that local residents or travelers will discern the Project. As a result, the existing landscape character remains unchanged and intact.

KOP 5 Alt – Miller Road, Located West of the Project (Distance to Project: 167 feet)

KOP 5 Alt was photographed from Miller Road and faces east to one solar array (of four) that are sited in fields adjacent to the roadway. The viewer is standing approximately 167 feet (near foreground view) from the Project within a small tree hedgerow opening that facilitates access to the field. The Project viewshed analysis (see Figure 1.) predicted a minor amount of visibility where several small gaps occur within the existing tree hedgerow along Miller Road. Observers that may glimpse through the tree hedgerow to obtain this view only consist of a limited number of local travelers (see Section 2.3 for AADT estimates for local roads) since there are no residential dwellings near this span of Miller Road.

The foreground of the existing photograph contains a locked red gate and protective signage within the edge of a grassy field. The middle ground conveys open pasture slightly increases in elevation. The background is comprised of woodland that bounds the visible length of the field. The general character of this photographed view is rural-agricultural.

In the proposed (leaf-off) simulated condition of KOP 5 with 5-year landscaping, the Project is visible in the near midground but is significantly screened by large coniferous trees and shrubs placed in elevated positions. These plantings narrow the gaps between visible solar panels, and the observer's perspective further reduces visibility by only showing partial sides of the panels. This combination results in a smaller portion of the Project being perceived.

In the leaf-on simulation with 5-year landscaping, additional foliage and foreground grasses further diminish the visibility of the Project to low levels. The landscape character shifts slightly from rural-agricultural to a mix of forested and utility land-use, with subtle elements of rural agriculture remaining. Local residents traveling on Miller Road (e.g., local roads in the VSA containing an estimated AADT between 57 and 75) may catch brief glimpses of the solar panels due to an intervening tree hedgerow along the road and the speed of travel, but the viewing opportunity is expected to be narrow and fleeting.

KOP 7 Alt 2 – Miller Road, Located South of the Project (Distance to Project: 204 feet)

KOP 7 Alt 2 is located south of Project and demonstrates a near midground view of a non-contiguous solar array (of four) that is sited in proximity to Miller Road. The perspective is oriented northwest and is approximately 200 feet from the Project. KOP 7 Alt 2 was also documented from a resident's driveway; however, the vast majority of the resident's driveway and dwelling is

forested, therefore visibility is limited for the resident and is only predicted to occur where the driveway intersects Miller Road. Therefore, KOP 7 Alt 2 is representative of a limited number of viewers (see Section 2.3 for AADT estimates for local roads) consisting of residents who traverse or reside along Miller Road.

This view presents a gently sloping grassy hill with varying shades of green. A wire fence and gate following laterally completes the grassy foreground. The middle ground comprises a rising hill of pasture where a single horse is seen grazing. Little to no tree vegetation is discernible in the view. The background is not distinguishable due to the precluding nature of the midground hill, therefore a visible horizon where the crest of the hill intersects the sky is observed. As demonstrated by the photograph, the view is comprised of rural-agricultural character.

In the KOP 7 Alt 2 (leaf-off) photo-simulation with 5-year landscaping, the open midground hill transitions into a hill covered with solar panels, creating a consistent pattern of textures, colors, and lines. The solar panels intersect the sky horizon at the top of the hill, adding contrast to the view. Proposed landscaping, including large evergreen trees near the foreground, helps segment and interrupt the view of the Project.

In the leaf-on simulation with 5-year landscaping, fuller plantings further soften the view, particularly along the fence line and a portion of the solar panels. The landscape character shifts from rural-agricultural to predominantly utility land-use. However, the visibility of the Project is reduced by existing tree hedgerows along Miller Road, and the limited number of viewers traveling on this road would experience only brief glimpses of the Project due to the screening and speed of travel.

KOP 10 – Bethel Ridge Road, Located East-Southeast of the Project (Distance to Project: 1-Mile)

KOP 10 was photographed from Bethel Ridge Road and demonstrates a 1-mile distant, midground to background view of the Project. KOP 10 faces the Project to the west along an elevated section of the road where approximately 190-foot stretch of Project visibility was predicted. A few residents in the vicinity may experience a view comparable to KOP 10, however, it is important to note that some dwellings in the vicinity contain partial visual obstructions consisting of tree hedgerows and/or single trees that may moderate views of the Project. Type of viewers that KOP 10 represents are local residential dwellings, commuters, and traveling local residents.

The existing condition photograph illustrates a forested and rural landscape with undulating terrain. The foreground depicts the edge of the road and a wire fence that bounds several enclosed areas for containing livestock. As the terrain recedes, several sparse tree hedgerows overlap and frame each successional field. The left side of the photograph illustrates a forested area with a meandering road running through. The middle ground continues patterns of open

fields that are bounded by forested areas that increase in elevation as it travels away from the observer. The background consists of undulating landforms that are abundant in forested vegetation.

In the proposed (leaf-off) condition view of KOP 10, solar arrays are partially visible in the far midground, softened by existing deciduous trees bordering the Project. The visual change is minimal, as the dark blue hues of the solar panels blend with the background forests, making the Project nearly unnoticeable to local residents traveling on Miller Road. Nearby residents may observe the Project for longer periods, but its small scale and low contrast make it less visually intrusive. The rural agricultural and forested landscape remains the dominant feature.

In the leaf-on photo-simulation, the Project's appearance is similar, with a slight increase in contrast due to the blue hue of the solar panels against the green field and forest. However, the overall visual effect remains consistent and subdued.

4.4 Visual Assessment: Conclusionary Discussion

This section provides a conclusionary discussion of the completed visual assessment by objectively reviewing the data driven results of the executed visual analysis described in the above sections. The conclusionary discussion is provided as follows.

- The viewshed analysis of Figure 1 indicates that 13.57% of predicted visibility within Jefferson Township, contrariwise, 86.43% of the VSA will not discern the Project. The largest occurrence of Project visibility is found within the rural residential and agricultural fields in Jefferson Township (8.58%), Table 1 indicates these areas comprise a population of approximately 336. This is followed by the communities of Jefferson (3.21%;155 population), Eldersville (1.64%; 243 population), and Penowa where a negligible amount of visibility is predicted. The predicted 13.57% in visibility is generally concentrated to locations in the immediate vicinity of the Project Site, which include McCready Road and Miller Road, and private agricultural fields and/or pasture, among others.
- Travel corridors were analyzed using Pennsylvania DOT AADT to assess solar array visibility. Eldersville Road (AADT 1,445) may have a small section of visibility (0.26 miles) near Eldersville, while Cross Creek Road (AADT 982) and Cedar Grove Road (AADT 914) are not predicted to have visibility of the solar arrays. Local roads such as State Line Road (AADT 57), Scott Hollow Road (AADT 57), Bethel Ridge Road (AADT 75), McCready Road, and Miller Road may have limited visibility in areas with elevated topography and open agricultural fields. The results of the photo-simulations from Miller Road (KOPs 5 Alt and 7 Alt 2) indicate that there will be visibility of the solar arrays; however, proposed landscaping will likely help to interrupt these views. Most of these roads are bordered by heavily forested woodlands and hedgerows, which obstruct visibility. McCready Road, a gravel and dirt road within the Project site, is

expected to have the most visibility, but due to its low AADT, the number of residential viewers is anticipated to be minimal.

- The VSA identified five general land cover types using publicly available NLCD data: agricultural, forested, developed, open, and water. The solar array viewshed analysis revealed that agricultural land has the highest predicted visibility of the solar arrays, though few viewers within these areas may discern the Project. Forested land ranks second in visibility, but visibility is mostly limited to the forest's edges. Developed, open, and water land-uses have significantly less predicted visibility of the solar arrays.
- In total, four visual and historic resources were identified within the VSA, however, only one, State Game Land (SGL) 303, received a minor amount predicted visibility of the Project. The northwest boundary of the SGL is within a few hundred feet of one of the southern arrays. This SGL consists of forest, open fields, and reclaimed strip-mine areas. Even though the State Game Lands are in close proximity to one of the solar arrays, they would only receive roughly 0.28 acres of predicted Project visibility over the land’s 222 acres. This visibility is isolated along the perimeter of the SGL closest to the solar array. Due to the limited extent and the seldomly seen area on the periphery of the SGL, it is reasonable to conclude that the Project would not diminish the enjoyment of the SGL as viewers would gravitate toward the interior of the lands where no Project views exist.
- Eight KOP locations were selected for preparation of photo-simulations based upon several factors, such as presence of predicted visibility, distance to Project, LSZs, compass direction, clarity of view, frequency of view, viewer types, and as applicable, sensitive locations. Section 4.3 provides a thorough description of each KOP as it relates to the existing and proposed viewing environment. According to the results of Section 4.3, three out of eight KOPs demonstrate minor visual change due to the Project, this includes KOPs 1, 4, and 10 which are simulated at a mile or more from the Project. Another three of the eight KOPs illustrate a low to moderate visual change, this includes KOPs, 2, 2 Alt, and 3 which are simulated from within a quarter to half-mile distance to the Project. This suggests the Project will not impact all places, locations, or sites at a variety of distances from the Project Site.
- The remaining two of eight KOPs, 5 Alt and 7 Alt 2, were prepared as photo-simulations from Miller Road and are immediately adjacent to the Project, roughly 170 to 205 feet from the Project, respectively. Both KOPs are expected to result in some level of visual change due to the proposed conditions. However, both KOPs were prepared from strategic vantage points where small gaps existing in a tree hedgerow along the road. Therefore, local residents traveling on Miller Road (e.g., local roads in the VSA containing an estimated AADT between 57 and 75) will only catch brief glimpses of the solar panels due to an intervening proposed and existing vegetation along the road.

Therefore, the summarized results above indicate that the quality of the existing landscape, the visual resources identified within the VSA, and a substantial amount of the public will not be adversely impacted by the Project. Most visual changes associated with the Project are documented in simulations on Miller Road that are positioned immediately adjacent to the Project site (see KOP 5 Alt and 7 Alt 2 of Figure 2), but as mentioned above, the majority of Miller Road is shielded by proposed and existing vegetation, except for limited areas of the road where KOP 5 Alt and 7 Alt 2 were prepared.